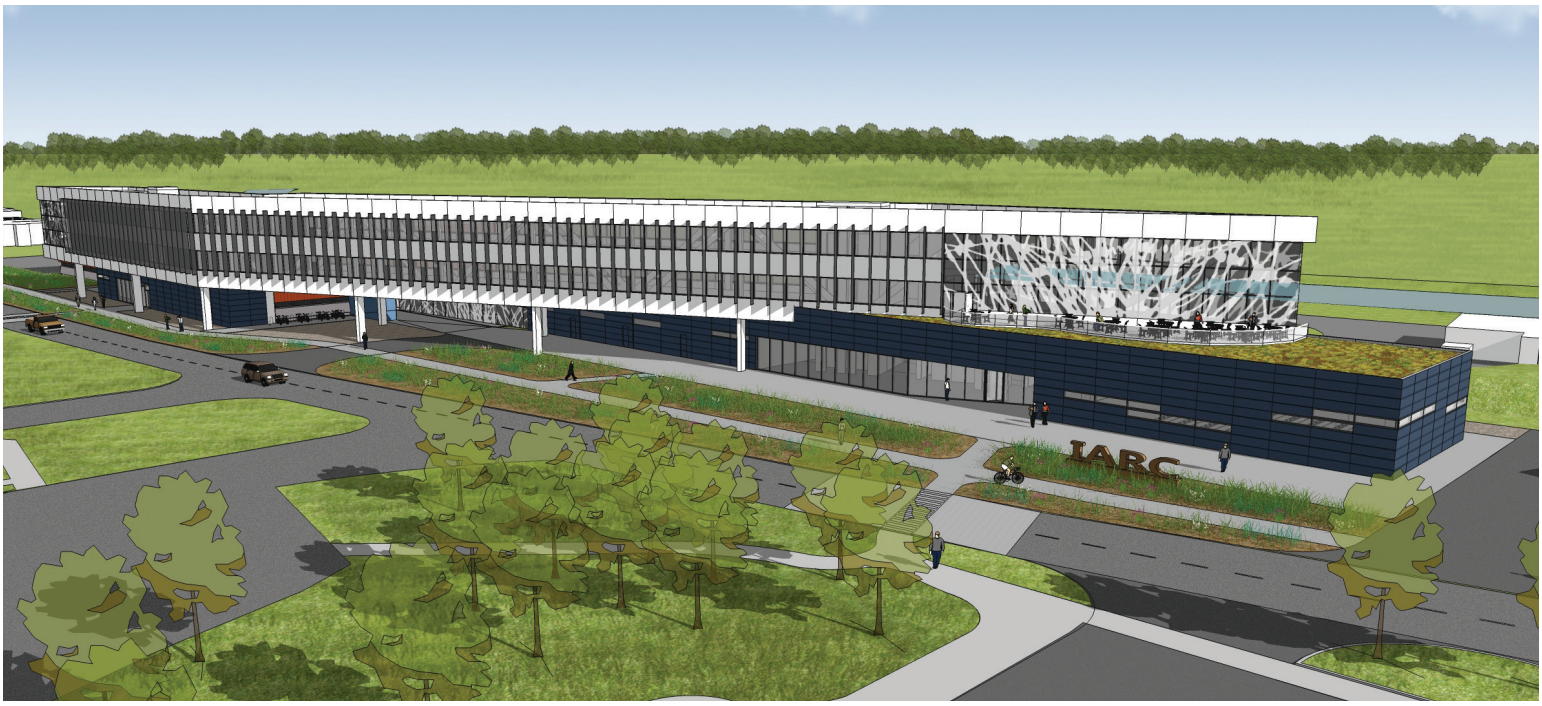
Science at Fermilab

Illinois Accelerator Research Center

Developing breakthroughs in accelerator science and translating them into applications for the nation's health, wealth and security.



The Illinois Accelerator Research Center, or IARC, will provide a state-of-the-art facility for accelerator research, education and industrialization. Scientists and engineers from Fermilab, Argonne and Illinois universities will work side by side with industrial partners to develop breakthroughs in accelerator technology and its applications in energy and environment, medicine, industry, national security and discovery science. Funding for IARC is provided by the Illinois Department of Commerce and Economic Opportunity and the U.S. Department of Energy's Office of High Energy Physics.

The IARC Facility

- Located on the Fermilab campus, this facility will house 83,000 square feet of technical, office and classroom space. It will provide space for both laboratory staff as well as industrial partners.
- IARC will have areas for test accelerators, cryogenics infrastructure, temperature controlled workspaces, high capacity electrical power systems and industrial cooling water.
- The facility will be optimized for use by private industry and the development of advanced accelerator technology.

Opportunities for Illinois

- In a partnership between the Illinois Department of Commerce and Economic Opportunity and the U.S. Department of Energy's Office of High Energy Physics, IARC will provide the opportunity for Illinois to become a world leader in accelerator technology.
- With a strong focus on innovation and industrialization, IARC will attract high-tech companies and train Illinois citizens to develop advanced technology with applications in medicine, materials science and nuclear energy.
- As an educational center and working with science programs at nearby universities, IARC will offer advanced educational opportunities to Illinois and attract scholars from around the world. These top scientists will perform world-class research, educate and mentor Illinois students.

More information is available at:
http://iarc.fnal.gov

IARC will help Illinois become a world leader in accelerator technology.

Construction of the Office, Technical and Education building for the Illinois Accelerator Research Center started in spring 2012. It will provide space for laboratory staff as well as industrial partners. The first users will start occupying the 47,000-square-foot building in 2014.

Unique tools

Physicists have been inventing new types of accelerators to propel charged particles for more than 80 years. Today, besides their role in scientific discovery, scientists estimate that more than 30,000 accelerators are at work worldwide. They contribute to $500 billion per year in products and services, in areas ranging from diagnosing and treating disease to powering industrial processes. Next-generation particle accelerators can provide cheaper, greener alternatives to traditional industrial processes. Accelerators can also provide new solutions to existing problems such as how to screen cargo for national security.

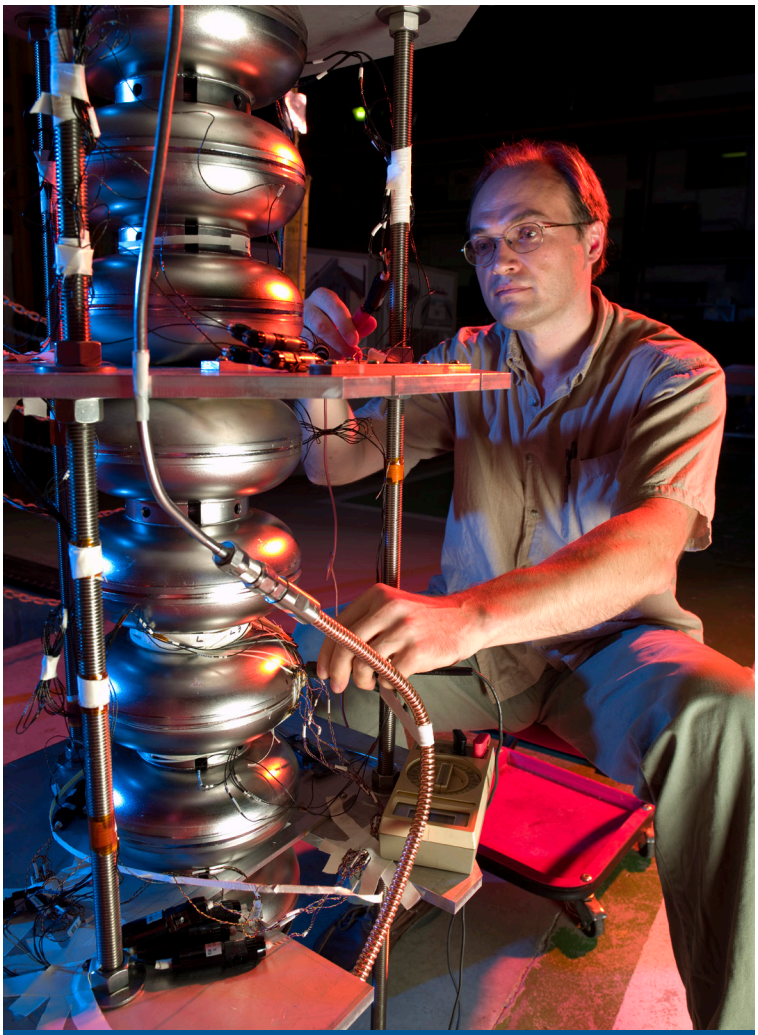
Benefits for Illinois

By positioning Illinois and Fermilab to become a global center of accelerator science and engineering, IARC presents an unparalleled opportunity to develop and share the known and still unexplored benefits of particle accelerators. With a strong focus on industrialization of these technologies, IARC will attract high-tech companies and train Illinois citizens in advanced technologies.

IARC will bring economic benefits to Kane and DuPage counties. Federal funding for accelerator development will support about 200 Illinois high-tech jobs. The number of new industrial jobs created in Illinois as a result of industrial accelerator development at IARC is potentially much larger.

Educational programs

IARC will develop world-leading educational programs in key aspects of accelerator physics and engineering. As an educational center and working with accelerator programs at nearby universities, IARC will offer advanced educational opportunities to Illinois and attract scholars from around the world. Regional universities, including the University of Chicago, University of Illinois, Illinois Institute of Technology, Northern Illinois University and Northwestern University, all have active research programs at Fermilab and Argonne. By providing state-of-the-art facilities for visiting scientists, students and industrial partners, IARC will strengthen Fermilab's and Argonne's links to Illinois universities and industry.



Superconducting radio frequency technology is at the heart of future proposed particle accelerators. The Illinois Accelerator Research Center will give Fermilab and its industrial partners an opportunity to pursue these next-generation particle accelerators, while collaborating with local universities to train a new generation of scientists, engineers and technical staff in accelerator technology.